

Serial No.: 09/577,616
Atty. Docket No.: P65350US0

outside rings 5, 10, 11. The inside bottom ring 4 has a cylindrical outer wall 44 and a conical inner wall 45. The walls 44, 45 have spiral grooves 6, 66, respectively, whose depth tapers progressively toward the top of the groove. The outside bottom ring 5 has a cylindrical inner wall 54 and a conical outer wall 55. Only conical outer wall 55 has a spiral groove 56. The rings 4 and 5 exhibit a triangular cross section and the bases of the bottom rings 4, 5 are screwed or clamped together with the bottom cover 2 in a manner that is not illustrated here. The inside bottom ring cylindrical outer wall 44 and the outside bottom ring cylindrical inner wall 54 define the cylindrical feed channel 3, and the spiral groove 6 becomes slotted helical passages which are indicated by the three grooves 6. Channels 7, feeding a first polymer melt, empty into the bottom of helical passage 6.

[0016] Stacked on the bottom rings 4, 5, which lie in a common plane, are inner middle conical ring 8 and outer middle conical ring 10. The middle conical rings 8, 10 together with the bottom rings 4, 5 define conical melt feed channels 12, 13 which have spiral passages 56, 66. The conical feed channels are formed by an inner middle ring outer wall 84 with the inner bottom ring inner wall 45, and by an outer middle ring inner wall 105 with the outer bottom ring outer wall 55. These conical melt feed channels

Serial No.: 09/577,616
Atty. Docket No.: P65350US0

12, 13 empty into a central annular channel 1, which is a continuation of the cylindrical feed channel 3 formed between the inside and outside cylindrical shell areas or walls, generally indicated by 108, of the middle rings 8, 10. The conical external shells of the bottom rings 4, 5 have in turn spiral grooves 66, 56, respectively, whereby the melt feed channels (not illustrated here) empty into the bottom grooves having the greatest depth.

D/ [0017] Mounted on the middle conical rings 8, 10 are inner top conical ring 9 and outer top conical ring 11 which define, with the conical external shell areas of the middle rings, melt feed channels 120, 130. The conical feed channels 130, 120 are formed by an inner middle ring inner wall 89 with an inner top ring outer wall 98, and by an outer middle ring outer wall 111 with an outer top ring inner wall 110, respectively. Conical melt feed channels 130, 120 empty into the central annular channel 1. The external shell areas or walls of the middle rings 8, 10 have spiral grooves 69, 68, respectively, whose depth tapers off toward the top, on the inner middle ring inner wall 89 and on the outer middle ring outer wall 111.

[0018] The internal truncated conical annular melt feed channels 13, 130 and the external truncated conical annular melt feed channels 12, 120 slope in opposite directions at approximately